LIVINGSTON COUNTY

(Livingston County Water Service Area Map)

- Estimated 1999 population of 9,300--80% on public water
- Estimated 2020 population of 9,300--90% on public water
- 155 miles of water lines, with plans for 110 additional miles
- Estimated funding needs for public water 2000-2005--$3,753,000
- Estimated funding needs for public water 2006-2020--$0

Livingston County had an estimate population of 9,339 (4,025 households) in 1999 with a projected population of 9,252 (4,398 households) in 2020. Public water is provided to over 3,200 households, or 82 percent of the county's residents. In areas of the county not served by public water, about 5 of 8 households rely on private domestic wells and 3 of 8 rely on other sources. Nearly 460 households will be added to public water service through new line extensions in 2000-2020.

Estimated Costs - Proposed Projects, 2000-2005

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in $1000	in $1000	in $1000	in $1000	in $1000	in $1000
LIVINGSTON								-
Crittenden/Livingston W/D	86	298	2,706					2,706
Ledbetter	1		10	7				17
Grand River	23	151	645					645
Smithland	2	12	37	53				90
Salem							295	295
TOTAL	**112**	**461**	**3,398**	**60**			**295**	**3,753**

PUBLIC WATER SYSTEMS

The residents of Livingston County are presently provided water service by five different water systems: the cities of Grand Rivers, Smithland, and Salem, the Ledbetter Water District and the Crittenden-Livingston Water District.

CRITTENDEN-LIVINGSTON COUNTY WATER DISTRICT

PWSID: 0700532
System Type: ..... COMMUNITY
Owner Type: ..... WATER DISTRICT
Surface Source: ..... CUMBERLAND RIVER
Purchase Source:
Well Source:
Sells Water to:

WATER SERVICE AREAS
LIVINGSTON COUNTY
Kentucky

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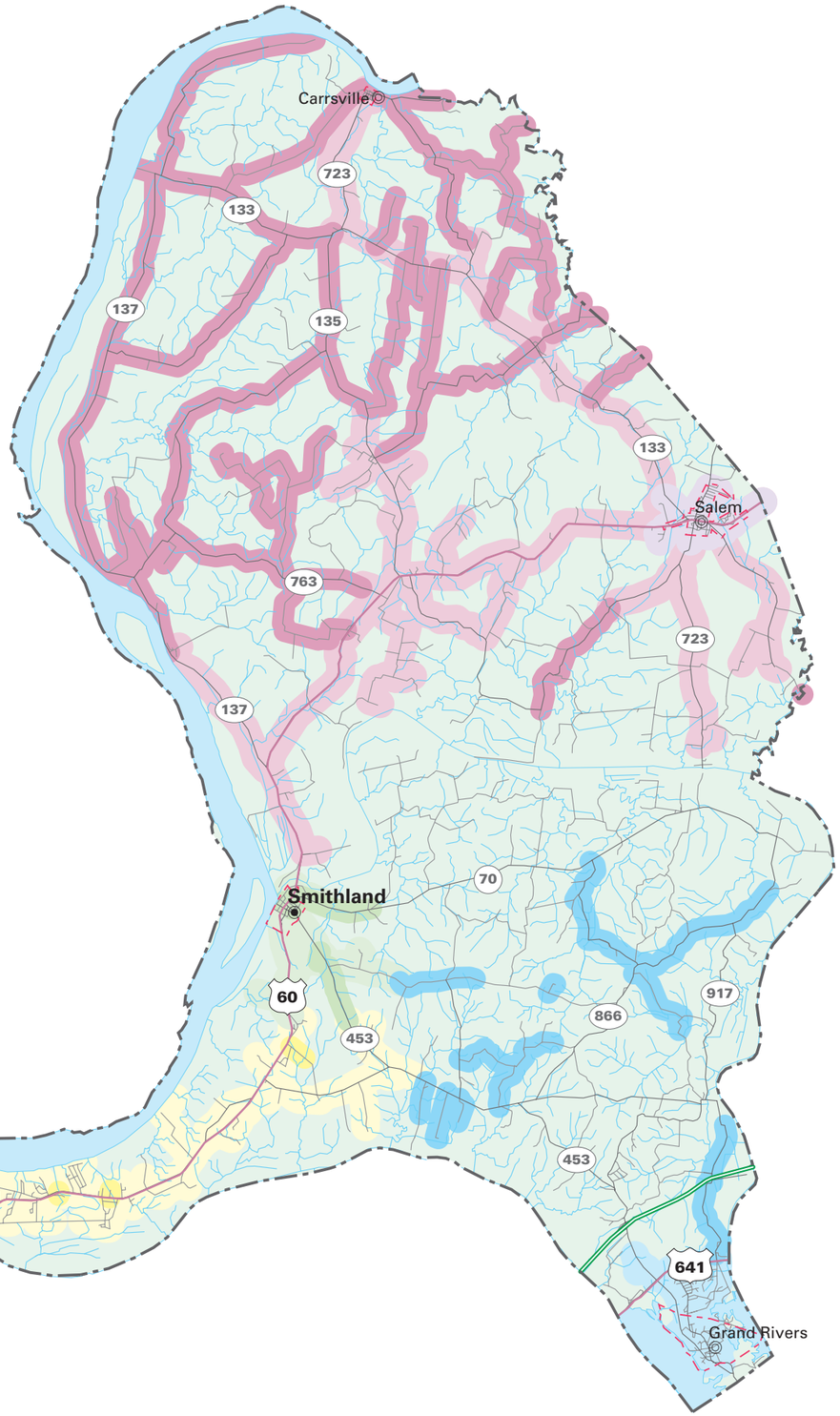

WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		SMITHLAND WATER AND SEWER SYSTEM
		SALEM MUNICIPAL WATER SYSTEM
		LEDBETTER WATER DISTRICT
		GRAND RIVERS WATER SYSTEM
		CRITTENDEN-LIVINGSTON COUNTY WATER DISTRICT

Treatment Plant Capacity (MGD):	0.50
Percent Daily Average Production:	75.00
Total Tank Storage Capacity (gallons):	750,000.00
Total Service Connections:	1,892.00
Number of Employees:	0.00
Treatment Operator Class:	2D
Distribution Operator Class:	3A
Customer Rate for 1,000 Gallons:	8.11
O/M costs 1997:	324,539.00
O/M costs per Service Connection:	173.09
Net Revenue 1997:	78,405.00
Total Water Produced 1997 (gallons):	128,245,000.00
Water Sold 1997 (gallons):	94,770,000.00
Unaccounted-for Water 1997 (%):	10.62

The Crittenden-Livingston Water District serves 630 households in Livingston County. The water plant, which also serves 120 households in Crittenden County, is located at Pickneyville on the Cumberland River, which is its source of water. The plant's capacity is 500,000 gallons per day and is presently operating at approximately 75% of its capacity. Storage consists of three tanks and a clear well with 750,000 gallons storage capacity. Of the three tanks, one is located in Livingston County, as well as the clear well that gives 300,000 gallons of storage in Livingston County. The distribution system is in good condition, although water loss or non-revenue production is around 25% that are higher than it should be.

The District is presently in the process of a major expansion, which would provide services to 200 additional residents in Livingston County by crossing the Cumberland River at Pickneyville and serving the Tiline area. Also, the project includes expansion of the water treatment plant to 2.0 million gallons per day in order to serve Smithland (eliminating the water plant at Smithland) and providing supplemental service to Grand Rivers and the Ledbetter Water District. It is anticipated that in the near future this plant will be the sole source of treated water for all of Livingston and Crittenden counties. The District is expected to grow according to the Water Supply Plan as a result of the construction of another lock in Kentucky Dam ($500 million) and the extension of lines to serve other areas in the county. Growth in usage is expected to exceed 38% through 2010. Currently, the water line coverage in the District's service territory is less that 50%. Projects have been compiled to extend water lines to those areas that are currently not being served and other under-served areas.

LEDBETTER WATER DISTRICT

PWSID:	0700243
System Type:	COMMUNITY
Owner Type:	WATER DISTRICT
Surface Source:	
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):	0.30
Percent Daily Average Production:	64.00
Total Tank Storage Capacity (gallons):	300,000.00
Total Service Connections:	1,050.00
Number of Employees:	6.00
Treatment Operator Class:	2D
Distribution Operator Class:	2A
Customer Rate for 1,000 Gallons:	4.12
O/M costs 1997:	185,430.00
O/M costs per Service Connection:	182.69
Net Revenue 1997:	14,914.00
Total Water Produced 1997 (gallons):	68,277,400.00
Water Sold 1997 (gallons):	59,228,118.00
Unaccounted-for Water 1997 (%):	4.61

The Ledbetter Water District's source of water is a well field located north of US 60 near the Ohio River. The quality of the water is a problem in that, like Smithland, it has a high iron content. The water treatment plant has a capacity of 300,000 gallons per day and at times usage has required purchasing water from Grand Rivers. The District has plans to purchase from the Crittenden-Livingston Water District when their expansion is completed and will eventually purchase all their water from that source. Storage consists of a clear well and two tanks with a total storage capacity of 300,000 gallons. Ledbetter serves 1,050 customers, which includes 1,008 residential households.

The distribution system, while relatively new, does have some areas with inadequate flows that need replacement. Ledbetter, due to its location along US 60 near Paducah, is experiencing a substantial growth. New developments (golf course and residential area) are under construction and will create growth and water usage. The Water Supply Plan indicates growth of 10% through the year 2010. However, with the new developments underway, the availability of sewer service now administered by the District, a projected growth of 30% through the year 2010 is possible, creating an even greater demand for water. Projects have been proposed to meet the anticipated increase in demand as well as to further enhance the system's ability to economically service its existing customer base.

GRAND RIVERS WATER SYSTEM

PWSID: 0700162
System Type: ..... COMMUNITY
Owner Type: ..... MUNICIPAL
Surface Source: ..... KENTUCKY LAKE
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): 0.30
Percent Daily Average Production: 99.00
Total Tank Storage Capacity (gallons): 400,000.00
Total Service Connections: 1,037.00
Number of Employees: 6.00
Treatment Operator Class: 2D
Distribution Operator Class: 2A
Customer Rate for 1,000 Gallons: ..... Not available
O/M costs 1997: ..... Not available
O/M costs per Service Connection: ..... Not available
Net Revenue 1997: ..... Not available
Total Water Produced 1997 (gallons): ..... Not available
Water Sold 1997 (gallons): ..... Not available
Unaccounted-for Water 1997 (%): ..... Not available

The City of Grand Rivers receives its raw water from Kentucky Lake. The plant, which has a capacity of 300,000 per day, is operating at nearly 100% of its capacity. In order to meet their needs, water is purchased from the North Marshall Water District through a temporary line across Kentucky Dam. Future plants to construct a new lock in the Kentucky Dam will disrupt that service. For that reason, Grand Rivers will purchase treated water from Crittenden-Livingston Water District and eventually eliminate the water treatment plant that is in need of major expansion and improvement. The City has adequate storage with three tanks and a clear well for a total capacity of 400,000 gallons

The City's distribution system is in relatively good condition with line sizes adequate to meet local needs. The system serves 1,037 customers with 937 residential households, including Lake City residents whose water district dissolved and merged with the Grand Rivers system. The Livingston County Water Supply Plan indicates growth of 20% through the year 2010 due to normal growth. With the construction of the additional lock in Kentucky Dam and the 700 workers expected to move in to work on the project, the growth may exceed those projections significantly.

SMITHLAND WATER AND SEWER SYSTEM

PWSID: 0700401
System Type: ..... COMMUNITY
Owner Type: ..... MUNICIPAL
Surface Source:
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): 0.14
Percent Daily Average Production: 49.00
Total Tank Storage Capacity (gallons): 194,000.00
Total Service Connections: 304.00
Number of Employees: 0.00
Treatment Operator Class: 1D
Distribution Operator Class: 2A
Customer Rate for 1,000 Gallons: ..... Not available
O/M costs 1997: ..... Not available
O/M costs per Service Connection: ..... Not available
Net Revenue 1997: ..... Not available
Total Water Produced 1997 (gallons): ..... Not available
Water Sold 1997 (gallons): ..... Not available
Unaccounted-for Water 1997 (%): ..... Not available

The City of Smithland obtains its raw water from two wells located about 200 feet from the Cumberland River. The source is a problem in that the water has a high iron content that causes discoloration and creates complaints by residents in the City. The treatment plant (constructed in 1970) is operating near capacity and needs several improvements. Even so, it cannot adequately treat the iron. The distribution system has many problems due to lines constructed in the 1950s and in need of replacement. The city serves 304 customers including 261 households. Storage consists of two tanks and a clear well with 194,000 gallons total storage. Loss of water or non-revenue production exceeds 32% of the total produced, an indication of the poor condition of the distribution system.

The Smithland Water Plant will be replaced and taken out of operation when the Crittenden-Livingston Water Plant goes on-line in the year 2000. The Water Supply Plan does not indicate any substantial growth for Smithland's water system due to the limited area within their service area and the Ledbetter Water District to the West and Crittenden-Livingston Water District to the south and east of the City. Priorities for Smithland are related to improvements to the distribution system to include new and larger lines.

SALEM MUNICIPAL WATER SYSTEM

PWSID:	0700380
System Type:	COMMUNITY
Owner Type:	MUNICIPAL
Surface Source:	
Purchase Source:	
Well Source:	Yes
Sells Water to:	
Treatment Plant Capacity (MGD):	0.00
Percent Daily Average Production:	0.00
Total Tank Storage Capacity (gallons):	0.00
Total Service Connections:	429.00
Number of Employees:	0.00
Treatment Operator Class:	1D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:	Not available
O/M costs 1997:	Not available
O/M costs per Service Connection:	Not available
Net Revenue 1997:	Not available
Total Water Produced 1997 (gallons):	Not available
Water Sold 1997 (gallons):	Not available
Unaccounted-for Water 1997 (%):	Not available

The City of Salem purchases treated water from the Crittenden-Livingston Water District, but maintains their distribution system. Customers served by the City total 429, including 385 households. The distribution system is in relatively good condition with a loss or non-revenue usage of approximately 18%, and line sizes are reportedly adequate throughout the City. Crittenden-Livingston Water District provides the necessary storage.

As an agricultural area, Salem has not seen any major changes in population and water usage has been relatively the same. According to the Water Supply Plan, usage will increase approximately 5% through 2010.

Other Systems

MARTIN MARIETTA MATERIALS INC.

Martin Marietta Materials Inc. is located in Livingston County. The private, non-transient, non-community system has a storage capacity of 800,000 gallons. The water is purchased form from City of Smithland Water System.

PRIVATE DOMESTIC SYSTEMS

About 1,800 people in Livingston County rely on private domestic water supplies: 1,100 on wells and 700 on other sources.

On the northern and western edge of Livingston County wells in the alluvium of the Ohio River Valley yield several hundred gallons per minute with compound horizontal wells having a potential yield as high as 5,000 gpm. In most of Livingston County drilled wells in the uplands are adequate for a domestic supply. Yields as high as 50 gpm have been reported from wells penetrating large solution channels or fault zones. In the low-lying areas along the Cumberland and Tennessee Rivers and the tributaries to the Ohio River, most wells are inadequate for domestic use unless the well intercepts a major solution opening in the limestone in which the yield could be very large. In the uplands of the southern section of the county between the Tennessee and Cumberland Rivers most wells in gravel do not yield enough water for a domestic supply.

Springs with flows ranging from a few gallons per minute to 177 gpm are found in the county. Minimum flow generally occurs in early fall, maximum flows in late winter.